



Third West Air Monitor Result  
Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)'

01/19/2012 10:06 AM

Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbamitz@utah.gov)'"  
<cbamitz@utah.gov>

1 Attachment



227872-1.pdf

Joyce & Craig,

We had positive hits on January 16, 2012. All were chrysotile, see the attached. Please let me know if you have any questions or concerns.

Thanks,

Mike Shepherd  
Project Manager  
Rocky Mountain Power - Major Projects  
801.220.4584 Office  
801.631.1310 Ceil  
801.220.2797 Fax  
[michael.shepherd@pacificorp.com](mailto:michael.shepherd@pacificorp.com)

**REI LAB** *Reservoirs Environmental, Inc.*

January 18, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 227872-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

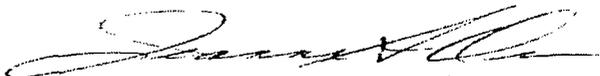
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 227872-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,



Jeanne Spencer Orr  
President

**RESERVOIRS ENVIRONMENTAL, INC.**

NVLAP Lab Code 101896-0; TDH: #30-0015

**TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS**

RES Job Number: RES 227872-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub RMP  
 Date Samples Received: January 17, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: January 18, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-011612 SW	EM 851263	0.0900	934	ND	0.0046	BAS	BAS
3W-011812 NW	EM 851264	0.1000	813	3	0.0047	0.0142	30.0
3W-011612 NE	EM 851265	0.0900	928	1	0.0046	0.0046	11.1
3W-011612 SE	EM 851266	0.0900	927	ND	0.0046	BAS	BAS

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

*gr*  
 Digitally signed by Greg  
 Date: 2012.01.18  
 12:44:34 -0700

DATA QA

**RESERVOIRS ENVIRONMENTAL, INC.**

NVLAP Lab Code 101896-0; TDH: #30-0015

**TABLE II. SUMMARY OF ANALYTICAL DATA**

RES Job Number: RES 227872-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub RMP  
 Date Samples Received: January 17, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: January 18, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
			3W-011612 SW	EM 851263	ND	0			
3W-011612 NW	EM 851264	Chrysotile	0	3	0	0	0	3	
3W-011612 NE	EM 851265	Chrysotile	1	0	0	0	0	1	
3W-011612 SE	EM 851266	ND	0	0	0	0	0	0	

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 1/18/12  
 Due Time: 8:50 a

**REILAB Reservoirs Environmental, Inc.**

5801 Ugan St. Denver, CO 80216 • Ph: 303 884-1868 • Fax 303-877-4275 • Toll Free: 888-RESI-ENV  
 Pager: 305-568-2696

**INVOICE TO: (IF DIFFERENT)**

**CONTACT INFORMATION:**

Company: <u>R&amp;R Environmental</u>	Company:	Contact: <u>Dave Kaskelby</u>	Contact:
Address: <u>47 W 9000 S</u>	Address:	Phone:	Phone:
<u>Sandy, UT 84070</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3<sup>rd</sup> West Sub - RMP</u>		<u>dave@rrenviro.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm PLM / PCM / TEM <u>    </u> RUSH (Same Day) <u>X</u> PRIORITY (Next Day) <u>    </u> STANDARD (Rush PCM = 2hr, TEM = 6hr.)	REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES: <u>    </u> <u>    </u> <u>    </u>																															
	CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(s) / Dust <u>    </u> RUSH <u>    </u> 24 hr. <u>    </u> 3-5 Day RCRA 8 / Metals & Welding Fume Scan / TCLP <u>    </u> RUSH <u>    </u> 5 day <u>    </u> 10 day Organica <u>    </u> 24 hr <u>    </u> 3 day <u>    </u> S Day	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-rec, ISO-Indirect, Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	RETALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification		E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Air = A	Bulk = B	Dust = D	Paint = P	Soil = S	Wipe = W	Swab = SW	F = Food	Drinking Water = DW	Waste Water = WW	O = Other	**ASTM E 1792 approved wipe media only**													
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coli O157:H7, Coliforms, S.aureus <u>    </u> 24 hr. <u>    </u> 2 Day <u>    </u> 3-5 Day Salmonella, Listeria, E.coli, APC, Y & M <u>    </u> 48 Hr. <u>    </u> 3-5 Day Mold <u>    </u> RUSH <u>    </u> 24 Hr <u>    </u> 48 Hr <u>    </u> 3 Day <u>    </u> S Day	***Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.***																Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yyyy	Time Collected hh/mm:ap	EM Number (Laboratory Use Only)																						
Client sample ID number (Sample ID's must be unique)																	934	A		01/16/12		851263																						
1 <u>3W-011612SW</u>	<u>X</u>																813					64																						
2 <u>3W-011612NW</u>	<u>↓</u>																928					65																						
3 <u>3W-011612NE</u>	<u>↓</u>																927					66																						
4 <u>3W-011612SE</u>	<u>↓</u>																																											
5																																												
6																																												
7																																												
8																																												
9																																												
10																																												

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Client/Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Date/Time: <u>1/16/12</u>	Sample Condition: On Ice <u>    </u> Sealed <u>    </u> Intact <u>    </u>
Laboratory Use Only		Temp. (F°) <u>    </u> Yes / No <u>    </u> Yes / No <u>    </u> Yes / No <u>    </u>
Received By: <u>[Signature]</u>	Date/Time: <u>1/17/12 8:50 a</u> Carrier <u>Fed Ex</u>	
Results:	Contact <u>    </u> Phone <u>    </u> Email <u>    </u> Fax <u>    </u> Date <u>    </u> Time <u>    </u> Initials <u>    </u>	Contact <u>    </u> Phone <u>    </u> Email <u>    </u> Fax <u>    </u> Date <u>    </u> Time <u>    </u> Initials <u>    </u>
	Contact <u>    </u> Phone <u>    </u> Email <u>    </u> Fax <u>    </u> Date <u>    </u> Time <u>    </u> Initials <u>    </u>	Contact <u>    </u> Phone <u>    </u> Email <u>    </u> Fax <u>    </u> Date <u>    </u> Time <u>    </u> Initials <u>    </u>

7931-2192 0493

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

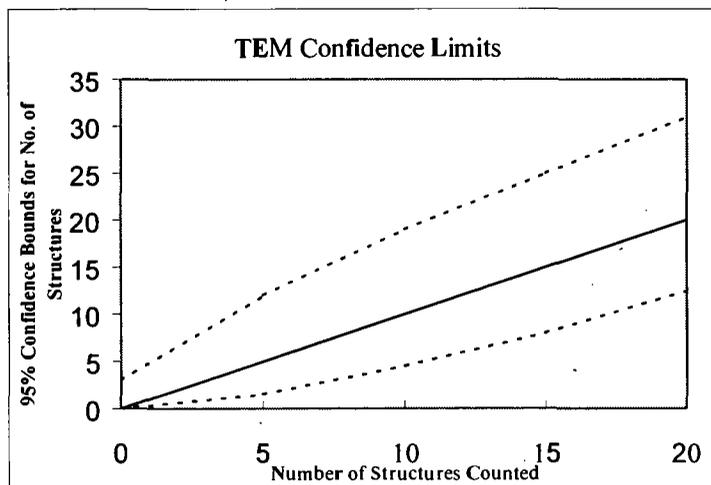
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeame S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	934
Date received by lab	1/18/12
Lab Job Number	227872
Lab Sample Number:	851263

Analyzed by	JR
Analysis date	1/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no			
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS	
A	K5-4	ND													
	H5-4	ND					Prep A	70% intact		5% debris					
	G5-4	ND					Prep B	80% intact		5% debris					
	F5-4	ND													
	E5-4	ND													
B	K5-1	ND													
	H5-1	ND													
	G5-1	ND													
	F5-1	ND													

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

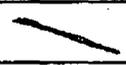
Laboratory name:	REI
Instrument	JEOL 100 CX <u>NS</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: ID =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
OA Type	

Client:	R&R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	813
Date received by lab	1/17/12
Lab Job Number:	227872
Lab Sample Number:	851264

Analyzed by	JB
Analysis date	1/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AI
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no			
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS	
A	K3-6	ND													
	H3-6	ND					Pump A	70% asbestos			5-7% debris				
	K4-6	ND					Pump B	100% asbestos			5-7% debris				
	H4-6	ND													
	H4-1	ND													
B	K4-1	B		1	7	6	CD		✓						
		B		2	9	2	CD		✓						
	H4-1	ND													
	G4-1	ND													
	F4-1	ND													

LA = Libby-type amphibole.

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

LAB NAME

REI

Lab Job Number:

227872

Lab Sample Number

851264

Analyzed by:

JTB

Analysis Date:

1/18/12

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibofe	C	NAM		Sketch	Photo	EDS
	E4-1	B		3	6	2	CD		✓		/			

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	978 928 <sup>4/18/12</sup> <sub>50</sub>
Date received by lab	1/18/12
Lab Job Number	227872
Lab Sample Number	851265

Analyzed by	JTB
Analysis date	1/18/12
Method (D=Direct, I=Indirect, IA=Indirect ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H4-4	ND					Pump A	70% asbestos			7-10% debris			
	G4-4	ND												
	F4-4	F		1	2	1	CD		✓		-			
	E3-1	ND					Pump B	60% asbestos			7-15% debris			
B	H5-1	ND												
	G5-1	ND												
	F5-1	ND												
	E5-1	ND												
	C5-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	927
Date received by lab	1/17/12
Lab Job Number:	227872
Lab Sample Number	851260

Analyzed by	JTB
Analysis date	1/18/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no			
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS	
A	K4-3	ND													
	H4-3	ND					Pimp A	80% unbrnt	5% debris						
	G4-3	ND					Pimp B	90% unbrnt	5% debris						
	F4-3	ND													
	E4-3	ND													
B	H4-1	ND													
	G4-1	ND													
	F4-1	ND													
	E4-1	ND													

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

- Fiber:** is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
- Bundle:** is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
- Cluster:** is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
- Matrix:** is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening